

Notice of Allowability

Application No.

10/769,205

Examiner

Sanh D. Phu

Applicant(s)

LOGUE ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 1/29/2004.
2. ☒ The allowed claim(s) is/are 1-36.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

REASONS FOR ALLOWANCE

1. Claims 1–36 are allowed.
2. References 6995621, 6542040, 5799049, 7002415, 6166606 and 6289068 are cited because they are pertinent to the claimed invention.
3. The following is an examiner's statement of reasons for allowance:
 - Regarding to independent claim 1, none of prior art of record teaches or suggests a method for controlling a low jitter digital frequency synthesizer wherein the method comprises procedures of incrementing a first counter of an input clock to produce an incremented first count when the clock count of the first counter reaches a value of D; incrementing a second counter of an output clock to produce an incremented second count when the clock count of the second counter reaches a value of M; periodically taking a snapshot of the incremented first count to produce a snapshot first count; periodically taking a snapshot of the incremented second count to produce a snapshot second count; and adjusting a delay line tap value based on an error, which is generated based on the snapshot first count and the snapshot second count.

-Regarding to independent claim 10, none of prior art of record teaches or suggests an apparatus for controlling a low jitter digital frequency synthesizer wherein the apparatus comprises devices of incrementing a first counter of an input clock to produce an incremented first count when the clock count of the first counter reaches a value of D; incrementing a second counter of an output clock to produce an incremented second count when the clock count of the second counter reaches a value of M; periodically taking a snapshot of the incremented first count to produce a snapshot first count; periodically taking a snapshot of the incremented second count to produce a snapshot second count; and adjusting a delay line tap value based on an error, which is generated based on the snapshot first count and the snapshot second count.

-Regarding to independent claim 19, none of prior art of record teaches or suggests a low jitter digital frequency synthesizer comprising a first counter for counting intervals of M cycles of an input clock to produce a first count; a second counter for counting intervals of D cycles of an output clock to produce a second count wherein a rate of the output clock corresponds to M/D times a

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rate of the input clock; a snapshot module for periodically taking a snapshot of the first count to produce a first snapshot and of the second count to produce a second snapshot; and a tap delay lay for producing the output clock based on an error value, which is generated based on the first snapshot and the second snapshot.

–Regarding to independent claim 28, none of prior art of record teaches or suggests a programmable logic device comprising: a first counter for counting intervals of M cycles of an input clock to produce a first count; a second counter for counting intervals of D cycles of an output clock to produce a second count wherein a rate of the output clock corresponds to M/D times a rate of the input clock; a snapshot module for periodically taking a snapshot of the first count to produce a first snapshot and of the second count to produce a second snapshot; and a tap delay lay for producing the output clock based on an error value, which is generated based on the first snapshot and the second snapshot.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should

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preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sanh D. Phu whose telephone number is (571)272-7857. The examiner can normally be reached on M-Th from 7:00-17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on (571) 272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sanh D. Phu
Examiner
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Matthew D. Anderson
Supervisory Patent Examiner